

STANDARDS DEVELOPMENT BRANCH OMOE



36936000010609



THE
ONTARIO WATER RESOURCES
COMMISSION
WATER POLLUTION SURVEY
of the
VILLAGE OF BARRY'S BAY
COUNTY OF RENFREW

1965

TD
380
.B37
1965
MOE

Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact ServiceOntario Publications at copyright@ontario.ca

TD
380
.B37
1965

Report on a water pollution
survey of the village of Barry's
Bay in the county of Renfrew.
80634

•

THE
ONTARIO WATER RESOURCES
COMMISSION

Report on a
WATER POLLUTION SURVEY
of the
VILLAGE OF BARRY'S BAY
in the
COUNTY OF RENFREW

Division of Sanitary Engineering
1965

WATER POLLUTION SURVEY
of the
VILLAGE OF BARRY'S BAY

<u>INDEX</u>	<u>PAGE NO.</u>
Introduction	1
Interviews with Officials	1
Village of Barry's Bay	1
Water Uses	2
Geology of the Village	2
Water Supplies	3
Surface Water Drainage	4
Sanitary Waste Disposal	4
Need for Water Works and/or Sewage Works	5
Industry	5
Private Outfalls	5
Municipal Refuse Disposal Site	6
Sampling Procedure	6
Interpretation and Significance of Laboratory Results	6
Sample Results	8
Summary	9
Recommendations	10
<u>APPENDICES</u>	
Laboratory Results	
Map of the Village of Barry's Bay	

WATER POLLUTION SURVEY

of the

VILLAGE OF BARRY'S BAY

INTRODUCTION

A water pollution survey of the Village of Barry's Bay was performed by OWRC staff on July 13 and 14, and August 9, 1965. Surveys of this type are made by the Ontario Water Resources Commission in order to locate potential and existing sources of surface water pollution. Recommendations are made concerning the abatement of conditions which adversely affect water quality. Appended to this report is a map of the village showing sampling locations.

INTERVIEWS WITH OFFICIALS

Discussions were held with the following officials during this survey:

County of Renfrew

Mr. P. J. Yakabuski, M.P.P., Electoral District of
Renfrew South;

Mr. J. Watt, Chief Public Health Inspector, Renfrew
County Health Unit;

Village of Barry's Bay

Mr. T. A. Conway, Reeve;
Mr. W. J. Goulet, Clerk-Treasurer.

VILLAGE OF BARRY'S BAY

This village is located in the western part of the County of Renfrew, approximately 25 miles south-west of the Town of Pembroke. Highways 60 and 62 converge within the municipality.

According to the 1965 Municipal Directory, the population of the village is approximately 1,381. The area is approximately 525 acres.

The Village of Barry's Bay is located on the northern shoreline of a bay which bears the same name as the village. This bay actually is the northern part of Kamaniskeg Lake which is principally fed and drained by the Madawaska River.

WATER USES

Municipal

The Village of Barry's Bay does not have a municipal water works. Water supplies are obtained from private wells.

Industrial

Water requirements for industrial purposes are not extensive.

Recreational

The popular bathing area is located on the shoreline of the bay at the south-east corner of the municipality.

GEOLOGY OF THE VILLAGE

A ground-water survey of the Village of Barry's Bay was performed by OWRC staff in 1960. Excerpts from the pertinent report are included in this presentation for general information.

Bedrock

To the east and west of the village along Highway 60, rocky hills of the Grenville granitic complex rise 250 feet above

the flat valley area. Outcroppings of rock occur along the western boundary of the municipality. The bedrock is described as a granite complex of intrusives of Precambrian age. No flat-lying Palaeozoic sediments appear in the area. The Hopefield fault reportedly crosses Highway 60 east of the village. The bedrock does not appear to be favourable as an abundant source of ground water.

Overburden

Eastward from the centre of the village, a considerable thickness of overburden is indicated by well logs. Lacustrine clays overlie bedrock and deposits of silt, fine sand, and gravel. Immediately north of the village, there are small sand and gravel pits. These deposits might be the result of deposition by melt-waters in an old glacial spillway or river channel, or the result of wave action which formed beaches on the shores of a glacial lake. Overburden depths of 125 feet indicate deposition in a trough-like area between the bedrock ridges. The overburden in the area appears to be the most favourable source of ground water.

WATER SUPPLIES

Private wells are utilized. Reportedly, dug wells are predominant, although some drilled wells are in use. The dug wells vary in depth from 35 to 50 feet and have an average depth of 40 feet. These wells apparently yield adequate quantities of water. The drilled wells vary in depth from 26 to 305 feet

and have an average depth of approximately 90 feet. The drilled wells having the highest capacity appear to be those constructed in the overburden.

Unfortunately, many wells reportedly exist on premises having an area of approximately 6,000 square feet where private sub-surface sewage disposal systems also are provided. Although the municipal officials have given some consideration in the past to the installation of a municipal water works, popular opinion did not provide enough support to permit the initiation of such a project.

SURFACE WATER DRAINAGE

Due to the topography of the village, surface run-off flows drain either directly to the bay or to a small creek which flows through the village to the bay. Department of Highways storm sewers serve Highway 60 and part of Bay Street, with the outlet from the storm sewer system extending northward from Highway 60 (as shown on the appended map) to discharge flows to the west branch of the creek which flows through the village.

SANITARY WASTE DISPOSAL

Private sewage disposal facilities are employed. Reportedly, numerous privies are in existence. Many cesspools and septic tank systems are utilized.

NEED FOR WATER WORKS AND/OR SEWAGE WORKS

Aside from the financial expenditures which would be required to install municipal water works and sewage works in the Village of Barry's Bay, it is probable that increased development in the village will increase the need for one or both services. A new six-room elementary separate school was constructed during 1965 and will rely on private sewage disposal facilities and a private water supply. Similar conditions will exist at the proposed district high school, the construction of which is to commence during 1965, and which will accommodate approximately 840 students. With respect to private premises, the existence of small lots where reliance is placed on private wells and sewage disposal facilities could present public health hazards.

INDUSTRY

The principal industrial firms in the village are Barry's Bay Dairy and several building supply concerns. The John P. Conway Limited sawmill is located on the shoreline of the bay.

Industrial waste produced at Barry's Bay Dairy is removed from the premises for disposal beyond the municipality.

PRIVATE OUTFALLS

Although such outfalls might exist, no instances of private discharges to watercourses were disclosed during this survey.

MUNICIPAL REFUSE DISPOSAL SITE

The site utilized by the village for refuse disposal is located near the Paugh Lake road in the Township of Sherwood. Although the site was not inspected during this survey, it was reported that the refuse disposal operation is not a hazard to surface and ground-water quality.

SAMPLING PROCEDURE

Seasonal weather conditions prevailed during both periods of sampling, with no appreciable rainfall occurring immediately prior to these dates of sampling.

Water samples were collected from the bay at the shoreline, from the watercourse which drains the village, and from the Department of Highways storm sewer outfall within the municipality.

Appended to this report is a map of the Village of Barry's Bay showing the locations of the sampling points. This map was not drawn to scale, but is actually a sketch produced for the purpose of this report. The pertinent laboratory results also are attached.

INTERPRETATION AND SIGNIFICANCE OF LABORATORY RESULTS

The analyses employed to determine the quality of the water samples were: biochemical oxygen demand (BOD), solids, detergents, and phenolic equivalents. Bacteriological examinations were performed to determine the presence of coliform organisms.

The BOD of sewage or polluted waters is the oxygen

required during stabilization of the decomposable organic or chemical material by aerobic biochemical action. A five-day BOD determination with incubation at 20 degrees Centigrade is reported. A high BOD is indicative of organic or chemical pollution. The BOD of a watercourse should not exceed four parts per million (ppm).

The analyses for solids include tests for total, suspended, and dissolved solids. The results are reported in ppm. The first test measures both the solids in solution and in suspension. The suspended solids indicate the measure of undissolved solids of organic or inorganic nature in suspension. Significant sources of suspended solids are sewage, industrial wastes, and land erosion. The dissolved solids are a measure of those solids in solution.

The presence of anionic detergents as ABS usually is an indication that domestic waste is contained in the sample.

The presence of phenol or phenolic equivalents is generally associated with discharges containing petroleum products.

The water samples collected on July 14 for bacteriological examination were examined at the Peterborough Regional Laboratory of the Ontario Department of Health. The samples obtained on August 10 were submitted to the OWRC laboratory in Toronto. The Peterborough Regional Health Laboratory utilized the Most Probable Number (M.P.N.) method to provide an index of

the number of coliform organisms per 100 cubic centimetres of the water sample. The Multiple Tube Fermentation technique was employed. The examination performed at the OWRC laboratory employed the Membrane Filter technique, and the number of coliforms is reported per 100 millilitres of water. Although the presence of coliforms indicates pollution from human or animal excrement, or from some non-faecal sources, E. Coli organisms originate in the intestinal tract of humans and other warm-blooded animals. It is the opinion of the OWRC that the presence of coliforms in a watercourse should not exceed 2,400 organisms per 100 ml. of water. This limit usually is applied to waters used for such a purpose as bathing. All surface waters should be adequately boiled or disinfected prior to human consumption.

SAMPLE RESULTS

The laboratory results indicate the satisfactory quality of the water in the bay at the bathing area and at the west side of the causeway extending to Mask Island.

A high coliform content was revealed in the sample obtained on July 14 from the mouth of the watercourse which flows through the Village of Barry's Bay to the body of water which bears the name of the village. The phenol content of 10 ppb in the sample obtained at this location on August 10 exceeds the desirable maximum of 5 ppb.

A high coliform content was revealed in the sample obtained on August 10 from the west branch of the creek at Highway 60 (sample point number MKBBW 100.89).

Flows discharging from the Department of Highways storm sewer to the local creek contained a trace of detergents, appreciable phenols, and a high coliform content. Since run-off from the highway surface was not occurring at the time of sampling, it is probable that the adverse quality of the storm sewer discharge can be attributed to the discharging of contaminants to the storm sewer.

The water samples obtained from the west branch of the watercourse upstream from the Department of Highways storm sewer outfall were generally of satisfactory quality, although an appreciable phenol content was revealed. The source of the phenol content was not disclosed. It might have originated at a site where earth-moving equipment had been utilized.

SUMMARY

A water pollution survey of the Village of Barry's Bay was performed by OWRC staff during the summer months of 1965, with investigations being made on July 13 and 14, and on August 9.

Water supplies and sewage disposal facilities are provided on a private basis in Barry's Bay. It is apparent that many premises whereon both services are provided privately have limited areas for such purposes.

The laboratory results pertaining to water samples collected during this survey indicate that the water quality of the bay was satisfactory at the two sampling points pertaining to the village. A small watercourse drains most of the municipality and conducts some untreated or inadequately treated waste to the bay. A major source of this waste is the Department of Highways storm sewer outfall, the contents of which contain some detergents, phenolic equivalents, and coliform organisms.

It is probable that gradual development of the Village of Barry's Bay will increase the need for municipal water works and/or municipal sewage works.

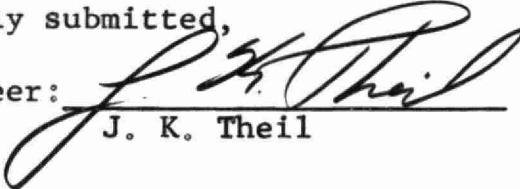
RECOMMENDATIONS

Efforts should be made to exclude contaminants from the Department of Highways storm sewer which was constructed to conduct surface run-off flows to the creek which flows through the Village of Barry's Bay.

Unless adequate provision can be made to protect the quality of private water supplies, and to exclude contaminants from surface and ground waters, officials of the Village of Barry's Bay might find it necessary to actively consider the need for municipal water and/or sewage works.

All of which is respectfully submitted,

District Engineer:


J. K. Theil

Approved by:

J. R. Barr, Director

ALL ANALYSES ARE REPORTED IN PPM
UNLESS OTHERWISE INDICATED

VILLAGE OF BARRY'S BAY
WATER POLLUTION SURVEY

SAMPLE POINT NO.	DESCRIPTION	DATE	5-DAY BOD	S O L I D S			ANIONIC DETERGENTS AS ABS	PHENOL IN PPB	BACTERIOLOGICAL EXAMINATION		
				TOTAL	SUSP.	DISS.			M.F. COLIFORMS PER 100 ML.	MOST PROBABLE NUMBER	
										TOTAL COLIFORMS	E. COLI
MKBB 100.10	MOUTH OF WATERCOURSE FLOW- ING THROUGH VILLAGE OF BARRY'S BAY TO BAY	JULY 14/65	0.8	114	7	107	0.0	---	---	24,000	2,300
		AUG. 9/65	0.8	126	7	119	0.0	10	210	--	--
MKBBE 101.20	EAST BRANCH OF CREEK AT OPEONGO ROAD	JULY 14/65							---	230	230
MKBBW 100.89	WEST BRANCH OF CREEK AT HIGHWAY 60	JULY 14/65							---	230	230
		AUG. 9/65							8,000	---	---
MKBBW 100.90W	STORM SEWER OUTFALL TO WEST BRANCH OF CREEK	AUG. 9/65	2.5	278	17	261	0.3	8	90,000	---	---
MKBBW 100.91	WEST BRANCH OF CREEK UPSTREAM FROM STORM SEWER OUTFALL	AUG. 9/65	1.3	136	6	130	0.0	8	130	---	---
1	BARRY'S BAY AT WEST SIDE OF CAUSEWAY TO MASK ISLAND	JULY 14/65	0.4	50	22	28			---	23	23
2	BATHING AREA ON SHORE- LINE OF BARRY'S BAY	JULY 14/65	0.5	96	2	94			---	230	23
		AUG. 9/65	---	--	--	--			480	---	--

